DATE OF TALK: Sept 6, 2013 TIME: 15:00

TITLE: IceCube-DeepCore-PINGU: Atmospheric Neutrino Physics at the South Pole

ABSTRACT: The IceCube neutrino observatory is entering a new stage of sensitivity to possible high energy astrophysical sources using the traditional array and low energy atmospheric neutrinos in conjunction with the DeepCore sub-array. As a dense in-fill to the IceCube neutrino observatory, DeepCore pushes the neutrino energy sensitivity down to tens of GeV. The added low energy reach and megaton size opens up opportunities to study neutrino oscillations, numu disappearance and possibly nutau appearance, using a massive triggered data set of O(100k) atmospheric neutrinos/year. I will cover the current status of DeepCore neutrino physics analyses as well as possible future extensions designed to resolve the neutrino hierarchy in an initial stage (PINGU) and study proton decay/extra-galactic supernovas in an ambitious second stage (MICA).

SPEAKER: D. Jason Koskinen

AFFILIATION: Pennsylvania State University